TECHNICAL REVIEW DOCUMENT
for
RENEWAL / MODIFICATION TO OPERATING PERMIT 95OPAD072

Metro Wastewater Reclamation District
Adams County
Source ID 0010097

Prepared by Jacqueline Joyce
June 2012
Revised September and November 2012 and February 2013

Reviewed by:

Operating Permit Supervisor:	Matt Burgett
Field Services Unit:	Dave Huber
Permitting Section Manager:	Roland Hea

I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal and modification of the Operating Permit for the Metro Wastewater Reclamation District. The current Operating Permit for this facility was issued on September 1, 2007. The expiration date was September 1, 2012. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal Operating Permit is issued and any previously extended permit shield continues in full force and operation. The source submitted a renewal application on August 25, 2011. After the submittal of the renewal application, the source submitted an application on October 20, 2011 requesting that the permit be modified to install a new emergency generator to replace an existing unit.

This document is designed for reference during review of the proposed permit by EPA, the public, other interested parties and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the renewal application submitted on August 25, 2011 and the modification application submitted October 20, 2011, comments on the draft permit and technical review document received on October 12, 2012, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251596446069. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction

Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

Metro Wastewater Reclamation District (Metro District or MWRD) operates a wastewater treatment facility. Primary treatment removes solids from wastewater through screening, grit removal and primary clarification. Secondary treatment uses microorganisms to digest dissolved organic matter. Approximately half the wastewater treated also undergoes further treatment to remove ammonia and nitrates in a nitrification/denitrification process. Prior to discharge, the wastewater is disinfected with a sodium hypochlorite solution and then dechlorinated with sodium bisulfate. The solids removed from the wastewater are treated using anaerobic digestion. Under the trade name METROGRO®, the Metro District applies most of the biosolids from digestion to agricultural land in eastern Colorado. The remaining biosolids not applied to land are sent to a private composting company. During anaerobic digestion of the solids, digester gas (methane and carbon dioxide) is produced. Suez Denver Metro, LLC then uses this low Btu gas to power two turbines for electric generation. Lastly, fugitive VOC and HAP emissions are released during the wastewater treatment process itself.

In addition to the wastewater treatment process, the following emission units are addressed as specific emissions units in this permit: a 4,000 gallon underground storage tank to store and dispense gasoline to Metro's motor vehicles, three (3) diesel fuel-fired and one (1) natural gas-fired internal combustion engines used to power electric generators and solvent cold cleaners.

There are two Operating Permits for this facility. Suez Denver Metro, LLC is the permittee for the combustion sources (01OPAD212). Metro is the permittee for the wastewater treatment sources (95OPAD072). This Operating Permit pertains to the wastewater treatment sources only.

The facility is located at 6450 York Street in Denver, Adams County, just southwest of the confluence of the South Platte River and Sand Creek in an industrialized area. The facility is bordered on the west by the South Platte River and on the south by the Burlington Ditch. To the east approximately 1/4 mile is Interstate 270.

The summary of emissions that was presented in the Technical Review Document for the previous renewal permit has been modified to reflect the updated potential to emit (PTE) of both criteria and HAP pollutants due to changes that may have occurred in emission factors and/or emission limitations since the previous permit was issued. Emissions in (tons/yr) at the facility are as follows:

Emission Unit	Potential to Emit (PTE)							
	PM	PM_{10}	SO_2	NO_X	CO	VOC	H_2S	HAPs
Suez Denver Metro, LLC Sources								
Combustion Sources (turbines, flares, engines and boilers)	17.26	17.26	169.6	86.85	99	12.6	5.3	See Table on Page 21
Metro Waste Water Reclamation District (MWRD) Sources								
Fugitive VOC Emissions from Wastewater Treatment Operations						11.1		See Table on Page 21
Emergency Generator E001 (1850 hp)	0.43	0.25	0.87	19.27	3.67	0.35		
Emergency Generator E002 (1322 hp)	0.11	0.11	0.11	3.48	1.90	0.21		
Proposed New Emergency Generator E003 (755 hp)	0.06	0.06	0.04	1.98	1.09	0.12		
Emergency Generator E004 (40 hp)[1]	Negl.	Negl.	Negl.	0.46	0.16	0.03		
Insignificant Heaters[2]	1.62	1.62	0.13	21.36	17.94	1.17		
Total	19.48	19.30	170.75	133.40	123.76	25.58	5.3	13.59

[1]This generator was previously considered an insignificant activity.
[2]Included in the insignificant activity list in Appendix A of the permit.

Potential to emit indicated in the above table is based on the following information:

Criteria Pollutants

Potential to emit for the Suez Denver Metro, LLC sources, the MWRD fugitive VOCs and emergency generator E001 are based on permitted emissions.

For the other MWRD emergency generators (E002 through E004), potential to emit of criteria pollutants is based on the emission factors, design rate and 500 hours per year of operation in accordance with the September 6, 1995 EPA Memo, "Calculating Potential to Emit (PTE) for Emergency Generators". The emission factors used for E002 and E003 are based on the NSPS limits for PM, NO_X and CO (PM_{10} was assumed to equal PM), AP-42, Section 3.4 (dated 10/96) for VOC and for SO_2 a fuel sulfur limit of 500 ppm and a diesel density of 7.05 lb/gal. Emission factors for emergency generator E004 are based on HAPCalc, version 3.0, EPA emission factors.

Emissions from the MWRD insignificant heaters are based on the design rate, 8760 hours per year of operation and AP-42 emission factors (Section 1.4, dated 3/98).

HAP Emissions

The breakdown of HAP emissions by emission unit and/or fuel burned and individual HAPs is provided on page 21 of this document. As discussed in the table footnotes on page 21, HAP PTE was determined as follows:

For the Suez Denver Metro, LLC combustion sources (NG and DG combustion), HAP emissions are based on the permitted fuel consumption limits and the most conservative scenario for the equipment permitted to burn that fuel and published emission factors (AP-42 for most, FIRE for the flares burning digester gas).

For fugitive emissions from wastewater treatment operations, HAP emissions are based on the maximum individual HAP emissions as calculated from the actual sampling data from the years 1992 – 2005 multiplied by 1.2 and total HAPS are based on permitted VOC emissions. Although this method for determining the PTE of individual HAPS differs from traditional methods, the Division considers that this method is justified as discussed in Section III of the Technical Review Document for the first renewal of this permit (issued September 1, 2007).

For the MWRD emergency generators E001 through E003, HAP emissions are based on design rate, AP-42 emission factors (Section 3.4) and 500 hrs/yr of operation for all but E001. Emissions from E001 are based on permitted hours of operation (750 hrs/yr). For emergency generator E004, HAPS emissions are based on design rate, HAPCalc version 3.0 EPA emission factors and 500 hrs/yr of operation.

For the insignificant heaters, HAP emissions are based on design rate, 8760 hrs/yr of operation and AP-42 emission factors (Section 1.4).

Actual emissions are shown in the table below in tons per year (tpy) and are based on APENs submitted for the data years indicated in the table. If PTE is indicated in the data year column, emissions are based on PTE (requested) emissions.

Emission Unit	Data Year	Actual Emissions						
		PM	PM_{10}	SO_2	NO_X	CO	VOC	HAPs
Suez Denver Metro, LLC Sources								
Turbines	2010	3.5	3.5	83.0	61.2	34.0	9.8	
Engines[1]	2010			0.48	0.55	0.69		
Boilers	2010				0.51	0.43		
Flares[1]	2010			0.74	0.09	0.08		
Metro Wastewater Reclamation District (MWRD) Sources								
Fugitive VOC Emissions from Wastewater Treatment Operations	2008						7.14	0.21
Emergency Generator E001 (1850 hp, AIRS pt 012)	2010				0.67	0.18		

Emission Unit	Data Year	Actual Emissions						
		PM	PM_{10}	SO_2	NO_X	CO	VOC	HAPs
Emergency Generator E002 (1322 hp, AIRs pt 018)	2011				0.09	0.05		
Proposed New Emergency Generator E003 (755 hp, AIRs pt 021)	PTE				0.40	0.22		
Total		3.5	3.5	84.22	63.51	35.65	16.94	0.21

MACT Requirements

Hazardous air pollutant (HAP) emissions from this facility are below the major source level (10 tons/yr of any single HAP and 25 tons/yr of combined HAP). Although the facility is not a major source for HAPS, the EPA has been promulgating rules for area sources (sources that are not major), those requirements that could potentially apply to this facility are discussed below:

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the Federal Register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). As indicated in 40 CFR Part 63 § 63.11170(a)(2) and (3), spray applications (to motor vehicles and using coatings that contain the target HAPS) that meet the definition of facility maintenance are not subject to the requirements in this rule. The Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that none of the paint stripping materials used at the facility contain methylene chloride; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

Gasoline Dispensing Facilities (40 CFR Part 63 Subpart CCCCCC)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities in 40 CFR Part 63 Subpart CCCCCC which were published in the Federal Register on January 10, 2008 and apply to gasoline dispensing facilities (GDF) located at area source (minor sources for HAPS). A 4,000 gallon gasoline storage tank is included in Section II of the permit and the requirements in 40 CFR Part 63 Subpart CCCCCC apply to this tank.

Reciprocating Internal Combustion Engines (RICE) (40 CFR Part 63 Subpart ZZZZ)

Revisions were made to the RICE MACT (published in the Federal Register on January 18, 2008) to address engines (any size) located at area sources. Under the January 18, 2008 revisions only new engines (engines that commenced construction on or after June 12, 2006) were subject to requirements. New engines located at area sources, meet the requirements of 40 CFR Part 63 Subpart ZZZZ by meeting the requirements in 40 CFR Part 60 Subpart IIII or JJJJ, as applicable. These requirements apply to engine E002 (1322 hp) and the proposed new emergency generator (E003).

Additional revisions to the RICE MACT were published in the Federal Register on March 3, 2010 and August 20, 2010 and these revisions address existing (commenced construction prior to June 12, 2006) compression ignition and spark ignition engines at area sources. These requirements apply to E001 (1850 hp) and to the emergency generators included in the insignificant activity list of the current permit (last revised June 12, 2008). Although engine E001 was not initially permitted as an emergency engine it is currently operated as an emergency engine. The two emergency generators (one 101 hp and one 40 hp) included in the insignificant activity list of the current permit are both natural gas-fired. MWRD indicated that the 101 hp emergency generator will be replaced by the proposed new diesel-fired emergency generator (E003) and that the 101 hp emergency generator has been removed from service. E001 and the 40 hp emergency generator have been in operation at the facility prior to June 12, 2006, so they are considered existing emergency engines and are subject to management standards (oil and filter change and inspect air cleaners, hoses and belts). Emergency generator E001 is required to comply with the requirements for existing compression ignition engines by May 3, 2013. The 40 hp emergency generator (E004) is required to comply with the requirements for existing spark ignition engines by October 19, 2013. The appropriate applicable requirements will be included in the renewal permit.

Note that Revisions were made to the RICE MACT on January 30, 2013. The January 30, 2013 revisions did not change the applicability requirements but did change the specific requirements for some engines (e.g. emergency engines used for demand reponse).

Industrial, Commercial and Institutional Boilers located at Area Sources (40 CFR Part 63 Subpart JJJJJJ)

The requirements in 40 CFR Part 63 Subpart JJJJJJ do not apply to gas fired boilers, nor do the requirements apply to process heaters. There are no boilers listed in Section II of the permit. There are a number of process heaters and boilers listed in the insignificant activity list. However all of the boilers burn gaseous fuel, therefore the requirements in 40 CFR Part 63 Subpart JJJJJJ do not apply.

New Source Performance Standards (NSPS)

EPA has promulgated NSPS requirements for new source categories since the issuance of the first renewal permit for this facility. NSPS requirements generally only apply to new or modified equipment and in general new equipment has been addressed through modifications of the Title V permit. However, because the recently promulgated

NSPS requirements address equipment that may not be subject to APEN reporting or minor source construction permit requirements, the applicability of some of the newly promulgated requirements are being addressed here.

NSPS Subpart JJJJ – Stationary Spark Ignition Engines

NSPS Subpart JJJJ applies to stationary spark ignition engines that commenced construction, reconstruction or modification after June 12, 2006 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. Only the 40 hp emergency generator (E004) is classified as a spark-ignition engine and as previously indicated under the discussion regarding the 40 CFR Part 63 Subpart ZZZZ requirements, the engine commenced operation prior to June 12, 2006; therefore, the requirements in NSPS Subpart JJJJ do not apply.

NSPS Subpart IIII – Stationary Compression Ignition Engines

NSPS Subpart IIII applies to stationary compression ignition engines that commenced construction, reconstruction or modification after July 11, 2005 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. Engine E001 was in service prior to July 11, 2005 therefore, the requirements in NSPS Subpart IIII do not apply to engine E001. Engines E002 and the proposed new emergency generator (E003) are subject to the requirements in NSPS Subpart IIII and the appropriate requirements from Subpart IIII have been included in the permit for these engines.

Compliance Assurance Monitoring (CAM) Requirements

CAM applies to any emission unit that is subject to an emission limitation, uses a control device to achieve compliance with that emission limitation and has potential pre-control emissions greater than major source levels. In the technical review document for the first renewal of this permit (issued September 1, 2007), the Division indicated that CAM did not apply to any equipment addressed in this permit, since none of the emission units addressed in this permit are equipped with a control device. This is still the case and CAM does not apply to any equipment addressed in this permit.

Greenhouse Gas Emissions

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is less than 100,000 TPY CO_2e. Future modifications greater than 100,000 TPY CO_2e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

III. Discussion of Modifications Made

Source Requested Modifications

August 25, 2011 Renewal Application

Permit contact information and attainment/maintenance status

In the renewal application, the source submitted an updated form 2000-100, which include general information regarding the facility, such as permit contact, responsible official and attainment status. In the renewal application, the source noted that they updated the attainment status to indicate the facility is located in an ozone nonattainment area. Since the current permit indicates that the area in which the facility is located is nonattainment for ozone, no changes are necessary to the permit based on this comment.

Insignificant Activities List

The source submitted an updated insignificant activity list and Appendix A of the permit was revised to include the updated list. Although the updated insignificant activity list submitted by the source grouped fuel burning equipment under either Reg 3, Part C, Section II.E.3.k or II.E.3.ggg because each heater or boiler is less than 5 MMBtu/hr, all equipment was grouped under Reg 3, Part C, Section II.E.3.k.

Emergency Generator for Bar Screen Building

The renewal application included information regarding a proposed new emergency generator. However, since the proposed emergency generator would qualify as a minor modification, the source submitted a separate application for this unit and the inclusion of this emission unit into the renewal permit is addressed under the October 20, 2011 modification application.

Accidental Release Prevention Program

The renewal application indicates that the source has switched from a gaseous chlorine and sulfur dioxide chlorination and dechlorination system to a liquid system using sodium hypochorite and sodium bisulfate to the effluent at their facility. As a result, the source indicated that the Accidental Release Prevention Program requirements no longer apply. The Division revised the language in Section I, Condition 4.1 to reflect this.

October 20, 2011 Modification Application

In their October 20, 2011 application MWRD proposed to install and operate a new diesel-fuel fired emergency generator. The proposed new emergency generator (E003) is intended to replace an existing natural gas-fired emergency generator.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications “are not otherwise required by the Division to be processed as a significant modification” (Colorado Regulation No. 3, Part C, Section X.A.6).

The Division requires that “any change that causes a significant increase in emissions” be processed as a significant modification (Colorado Regulation No. 3, Part C, Section

I.A.7.(a)). According to Part G of Regulation No. 3 (Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a significant increase in emissions is the potential to emit above the PSD significance. In their application the source estimated emissions based on 100 hrs/yr of operation. A September 5, 1995 EPA Guidance memo indicates that potential to emit (PTE) from emergency generators may be based on 500 hours per year of operation. Therefore, the Division estimated emissions for the proposed new emergency generator based on 500 hours per year of operation. Emissions were estimated using the NSPS emission limitations for PM, NO_X and CO and PM_{10} and $PM_{2.5}$ were presumed to be equal to PM. SO_2 emissions were based on a fuel sulfur limit of 500 ppm and an assumed diesel density of 7.05 lb/gal and VOC emissions were based on AP-42 emission factors. The table below shows that potential emissions from this unit are below the PSD/NANSR significance levels. Therefore, since the PTE of the proposed new emergency generator engine is below the NANSR/PSD significance levels, this modification qualifies as a minor modification.

Scenario	NO_X	CO	VOC	$PM/PM_{10}/PM_{2.5}$[1]	SO_2
Emission Factor[2] (g/hp-hr)	4.77	2.61		0.15	
Emission Factor (lb/gal)[3,]					7.05×10^{-3}
Emission Factor (lb/hp-hr)[4]			6.42×10^{-4}		
Emissions (lb/hr)[5]	7.94	4.34	0.48	0.25	0.17
Emissions (tons/yr) at 500 hrs/yr	1.98	1.09	0.12	0.06	0.04
PSD/NANSR significance level (T5 Minor Mod Level)	40	100	10	25/15/10	40

[1] $PM = PM_{10} = PM_{2.5}$

[2] Emission factors are NSPS Subpart IIII limitations. The NSPS NO_X limit is actually for non-methane hydrocarbons and NO_X so it is conservative to consider this as an emission factor for NO_X only.

[3] SO_2 emission factor based on 500 ppm S in fuel limit from NSPS and fuel density of 7.05 lb/gal.

[4] VOC emission factor from AP-42, Section 3.4 (dated 10/96), Table 3.4-1 (nonmethane is 91% of TOC per footnote f).

[5] Emissions are based on maximum design rates of 755 hp and 24.3 gal/hr.

Greenhouse gas emissions from this engine (based on 500 hours per year of operation) were estimated at 137.2 tons/year CO_2e. The emission factors used in this analysis were from 40 CFR Part 98 Tables C-1 and C-2.

In addition, the Division requires that "any change that is considered a modification under Title I of the Federal Act" be processed as a significant permit modification (Colorado Regulation No. 3, Part C, Section I.A.7.b). Part G of Regulation 3 Section I.L, revisions adopted July 15, 1993, Subsection I.G for modifications describes more specifically what constitutes a modification under Title I of the Federal Act and it indicates that a modification which triggers either Section 111 (new source performance standards (NSPS)) or 112 (national emission standards for hazardous air pollutant

(NESHAP)) requirements is considered a Title I modification. The Division considers that modifications that trigger either NSPS or NESHAP requirements that are already included in the Title V permit for another emission unit may be processed as a minor modification, since the specific NSPS or NESHAP requirements are already addressed in the permit.

In this case the current permit for this facility includes the requirements in 40 CFR Part 60 Subpart IIII, therefore, the Division considers that this modification can be processed as a minor modification.

Modeling Analysis

With the exception of short-term NO_X, emissions are below the modeling thresholds in the Division's Colorado Modeling Guidelines May 20, 2011 Updated Tables as indicated in the table below; therefore, modeling is not warranted for this modification.

The proposed emergency generator is an intermittent source. In accordance with a March 1, 2011 EPA Memorandum from Tyler Fox to Regional Air Division Directors, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard", EPA asserts that "existing modeling guidelines provide sufficient discretion for reviewing authorities to exclude certain types of intermittent emissions from compliance demonstrations". As suggested by the March 1, 2011 EPA guidance, the Division is restricting periodic testing of the emergency generator to daylight hours to mitigate impacts.

In addition, in accordance with PS Memo 10-01 (see pages 19 - 20) the Division's Stationary Sources Program has indicated that for minor sources with requested emissions below 40 tons/yr of NO_X and SO_2, that a compliance demonstration is not required for the short-term (hourly) SO_2 and NO_2 national ambient air quality standard (NAAQS). Given that EPA guidance indicates that discretion may be provided for excluding intermittent sources from NAAQS compliance demonstrations and that PS Memo 10-01 stipulates that a compliance demonstration for the hourly NO_2 NAAQS is not required, a modeling analysis was not conducted.

Pollutant	Modeling Threshold		Project Emissions[1]	
	Annual	Short-Term	Annual	Short-Term
SO_2	40 tons/yr	0.46 lbs/hr	0.04 tons/yr	0.17 lbs/hr
NO_2	40 tons/yr	0.46 lbs/hr	1.98 tons/yr	7.94 lbs/hr
CO	100 tons/yr	23 lbs/hr	1.09 tons/yr	4.34 lbs/hr
PM_{10}	15 tons/yr	82 lbs/day	0.06 tons/yr	6 lbs/day
$PM_{2.5}$	5 tons/yr	11 lbs/day	0.06 tons/yr	6 lbs/day

[1]For annual emissions, project emissions are based on 500 hours per year of operation.

Proposed New Emergency Generator (E003):

Cummins, Model No. DFEG, Diesel Fuel-Fired Internal Combustion Engine Powering an Electric Generator, Serial No. L110284726, rated at 755 hp (563 kw) and 24.3 gal/hr.

Provisions for the proposed new emergency generator have been included in Section II.5 of the permit.

Applicable Requirements: The following requirements apply to the proposed new emergency generator:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)

- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment, when burning coal (Reg 1, Section II.A.4)

  Based on engineering judgment, the Division believes that the operational activities of fire building, cleaning of fire boxes and soot blowing do not apply to diesel engines. In addition, since this engine is not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment also do not apply to this engine. Finally, based on engineering judgment, it is unlikely that process modifications will occur with the emergency generator. Therefore, for this unit the 30% opacity provision only applies during startup.

- SO_2 emission shall not exceed 0.8 lbs/mmBtu (Reg 1, Section VI.B.4.b.(i)).

  Note that since NSPS IIII sets limitations on fuel that are well below the 0.8 lb/MMBtu (500 ppm S, which is equivalent to 0.05 lb/MMBtu and 15 ppm S, which is equivalent to 1.55×10^{-3} lb/MMBtu), this requirement will be streamlined out in favor of the NSPS IIII fuel limitations.

- 40 CFR Part 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines", as adopted by reference in Colorado Regulation No. 6, Part A, as follows:

  - Emission limitations per § 60.4205(b)

  - Emission limitations shall be met for the time period specified in § 60.4206

  - Fuel requirements per § 60.4205(b)

  - Monitoring requirements per § 60.4209

  - Compliance requirements per § 60.4211

  - Notification, reporting and recordkeeping requirements in § 60.4214

- 40 CFR Part 60 Subpart A, "General Provisions", as adopted by reference in Colorado Regulation No. 6, Part A, as follows:

  - Circumvention (§ 60.12)

  40 CFR Part 60 Subpart IIII § 60.4218 identifies the general provisions that apply. According to the table, the provisions in § 60.7 (notification and recordkeeping) apply as specified in § 60.4214(a) and this section does not apply to this engine, therefore, the provisions in § 60.7 do not apply. The table also indicates that § 60.8 (performance testing) and § 60.13 (monitoring requirements) only apply to engines with a displacement greater than or equal to 30 liters per cylinder and therefore do not apply to this engine. In addition, the table indicates that the provisions in § 60.11 do not apply as the requirements are specified in Subpart IIII.

- 40 CFR Part 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines", as follows:

  Compliance with the requirements in Subpart ZZZZ are met by complying with the requirements in 40 CFR Part 60 Subpart IIII.

- APEN reporting requirements (Reg 3, Part A, Section II)

  The APEN reporting requirements will not be identified in the permit as a specific condition but are included in Section IV (General Conditions), Condition 22.e of the permit.

- Construction permit requirements in Reg 3, Part B

  Note that if this emergency generator were not subject to NSPS Subpart IIII requirements it would be exempt from APEN reporting requirements (and subsequently exempt from minor source construction permit requirements) provided actual, uncontrolled emissions were below the APEN de minimis level (1 ton/yr of NO_X). In addition, if this unit was not subject to NSPS Subpart IIII but did have to file an APEN it would be exempt from the minor source construction permit requirements if it were operated less than 250 hrs/yr.

  The APEN that was submitted with the October 20, 2011 modification application for this unit was based on this unit operating 100 hours per year. Therefore an APEN update would not be required for five years unless the unit operated for more than 100 hours per year. Therefore, the Division will not require that annual emission calculations be conducted unless the unit is operated for more than 100 hours per year.

  Typically a construction permit would include annual fuel consumption and emission limitations. However, since this unit is only required to file an APEN because it is subject to NSPS requirements, the Division is not including annual fuel consumption and emissions limits in the permit. In addition, language was added to require that the source submit an application to revise the permit to

include annual fuel consumption and emission limitations, if the unit is operated more than 250 hours per year (the level above which a construction permit would be required if this unit were not subject to the NSPS).

- RACT for NO_X, CO and PM_{10} shall be met by complying with the NSPS Subpart IIII requirements (Reg 3, Part B, Section III.D.2.a)

- RACT for VOC shall be met by complying with the NSPS Subpart IIII Requirements (Reg 3, Part B, Section IIII.D.2.a and Reg 7, Section II.C.2)

- As indicated previously under the discussion regarding the "modeling analysis", the Division has included a requirement to require that maintenance checks and readiness testing shall be conducted during daylight hours.

Emission Factors/Monitoring Plan

The emission factors used to estimate emissions from this unit are the NSPS emission limitations for PM, NO_X and CO. PM_{10} emissions are presumed to equal PM. Although the NSPS emission limit for NO_X is actually for NO_X + NMHC (non-methane hydrocarbons), the Division considers that the VOC emission factor from AP-42 should be used to estimate VOC emissions. SO_2 emissions are based on the fuel sulfur limit of 500 ppm (assuming a diesel density of 7.05 lb/gal). The following emission factors will be included in the permit:

Pollutant	Emission Factor	Emission Factor Source
PM	0.15 g/hp-hr	NSPS limit
NO_X	4.77 g/hp-hr	
CO	2.61 g/hp-hr	
PM_{10}	0.15 g/hp-hr	PM_{10} presumed to equal PM. NSPS PM limit.
SO_2[1]	7.05×10^{-3} lb/gal	NSPS fuel limit (500 ppm) and a presumed diesel density of 7.05 lb/gal.
VOC	6.42×10^{-4} lb/hp-hr	AP-42, Section 3.4 (dated 10/96), Table 3.4-1 (nonmethane 91% of TOC per footnote f).

[1]The NSPS fuel limit was racheted down to 15 ppm beginning October 1, 2010, so this is conservative. It should be noted that proposed revisions to 40 CFR Part 60 Subpart IIII published in the Federal Register on June 7, 2012 allows for existing fuel purchased (or otherwise obtained) prior to October 1, 2010 to be used until depleted.

The permittee will be required to monitor compliance with the NSPS fuel sulfur limitations by initially sampling the engine's day tank (if the tank is full prior to permit startup) and to sample each shipment of diesel fuel. In lieu of sampling, the permittee may use vendor data to demonstrate compliance with the fuel limitation. Compliance with the opacity limitations shall be monitored by conducting a Method 9 observation annually.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct

errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Metro Wastewater Reclamation District Operating Permit with the source's requested modifications. These changes are as follows:

Section I – General Activities and Summary

- Corrected the citation for the definition of the 8-hr ozone control area in Condition 1.1. In addition, Condition 1.1 was revised to address the following:
    - Removed language regarding the chlorine disinfection system, since it has been replaced with the sodium hypochlorite/sodium bisulfate disinfection system.
    - The statement indicating that the composting operations are exempt from construction permit requirements was removed, since composting operations are no longer conducted on site.
    - The description was revised to indicate the number of emergency generator engines addressed as specific emission units in the permit and
    - The name for the permittee of the combustion sources was revised.
- Condition 1.4 was revised to remove Section IV, Condition 3.d as a state-only requirement, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.
- Condition 3.3 was revised to reflect the name change for the permittee of the combustion sources.
- The following changes were made to the Table in Condition 6.1:
    - Added a column for the startup date of the equipment.
    - The 40 hp emergency generator that was previously included in the insignificant activity list has been included in this table.
    - Included the serial number for E002.
    - Added language to E001 and E002 indicating that these units are used for emergency purposes.

Section II.2 – Gasoline Storage Tank

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities in 40 CFR Part 63 Subpart CCCCCC which

were published in the Federal Register on January 10, 2008 and apply to gasoline dispensing facilities (GDF) located at area sources (minor sources for HAPS). This facility is a minor source for HAP emissions. Therefore, the provisions for GDFs at area sources apply to the gasoline tank at this facility.

The applicable requirements in 40 CFR Part 63 Subpart CCCCCC are based on the monthly throughput of the tank. The monthly throughput for this unit is less than 10,000 gallons and as a result the tank is subject to work practice standards. The appropriate requirements have been included in the permit.

Note that since the provisions in 40 CFR Part 63 Subpart CCCCCC have not been adopted into Colorado Regulation No. 8, Part E, these requirements are not state-enforceable and the "catch-all" provisions for APEN reporting and minor source permitting do not apply. Therefore, since the tank is categorically exempt from APEN reporting requirements in Colorado Regulation No. 3, Part A, Section II.D.1.ccc, the tank is exempt from the APEN reporting and minor source permitting requirements. In the event that the Division adopts these requirements this GDF will be subject to the APEN reporting and minor source permitting requirements and the requirements in 40 CFR Part 63 Subpart CCCCCC will be state-enforceable.

<u>Section II.3 – Existing Emergency Generator E001 (1850 hp)</u>

- Revised the table header to indicate that this unit is used for emergency purposes.

- The opacity monitoring requirements were simplified. Frequency for method 9 observations is still annual but there are provisions for more observations if an engine is operated for more than 250 hrs/yr. In addition, the permit was revised to clarify that no startup opacity observation is required, since startup is limited to 30 minutes.

- The fuel sampling language in Condition 3.4 was revised to remove the requirement specifying that if using vendor data, vendor sampling and analysis has to be in accordance with ASTM methods. Vendor specification sheets may or may not list what test method was used (usually ASTM methods are used and they are typically note on the specification sheet), however actual vendor sample data is generally not available so it is difficult for sources to verify with certainty that the vendor sampling and analysis was conducted in accordance with ASTM methods.

- This engine is subject to the requirements in 40 CFR Part 63 Subpart ZZZZ. Although this engine was originally permitted as a non-emergency engine, its current use is as an emergency engine; therefore, the Subpart ZZZZ requirements that apply to existing emergency engines (management practices – oil and filter change and inspect air cleaner, hoses and belts) have been included in the permit. Note that the bulk of the Subpart ZZZZ requirements are included in "new" Section II.6 but a reference to these requirements is included in Section II.3.

- Added the appropriate 40 CFR Part 63 Subpart A requirements

  Since this engine is not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7. 63.8, 63.9 and 63.10 do not apply. In addition, since this emission unit is an existing unit the requirements in § 63.5 (preconstruction review and notification requirements) do not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

Section II.5 – Engine E002

- Revised the table header to indicate that this unit is used for emergency purposes.

- The following changes have been made to the NSPS Subpart IIII requirements (Condition 5.1):

  - The smoke standards were removed from Condition 5.1.1 since these requirements do not apply to constant speed engines and engine E002 is a constant speed engine.

  - Condition 5.1.3 was removed since these fuel requirements no longer apply (they have been replaced by the requirements in Condition 5.1.4).

    In addition, the fuel sampling language was revised to remove the requirement specifying that if using vendor data, vendor sampling and analysis has to be in accordance with ASTM methods for the reasons discussed above under Section II.3, with respect to Condition 3.4.

  - Minor revisions were made to the fuel monitoring requirements.

  - Revisions were made to the provisions in Subpart IIII (published in the June 28, 2011 Federal Register) and these revisions have been reflected in the permit language. Those requirements revised include 5.1.2, 5.1.5 and conditions under § 60.4211.

  - **February 2013 revisions.** The draft permit was revised to address the January 30, 2013 revisions to Subpart IIII.

- The Reg 1 SO_2 limit (Condition 5.4) was removed since this limit is less stringent than the NSPS Subpart IIII fuel limitations. This condition has been included in the table for streamlined condition (Section III.3).

- The NSPS general provisions (Condition 5.6) were moved to Condition 5.1.12 (general provisions as noted in NSPS Subpart IIII).

- Added the appropriate 40 CFR Part 63 Subpart ZZZZ requirements (meet the

Subpart ZZZZ requirements by meeting the requirements in NSPS Subpart IIII).

"New" Section II.6 - Reciprocating Internal Combustion Engine (RICE) MACT Requirements

The requirements in 40 CFR Part 63 Subpart ZZZZ that apply to engines E001 and E004 were included in this condition.

February 2013 revisions. The draft permit was revised to address the January 30, 2013 revisions to Subpart ZZZZ.

"New" Section II.7 - Existing Emergency Generator (Previously an Insignificant Activity)

There are two emergency generators (one 101 hp engine and one 40 hp engine) included in the insignificant activity list of the current permit (last revised June 12, 2008). MWRD indicated that both engines are natural gas fired and that the 101 hp engine is no longer in service. Under the "catch-all" provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as National Emission Standards for Hazardous Air Pollutants (NESHAPs), may not be considered insignificant activities. As discussed previously EPA promulgated revisions to the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines on August 20, 2010 which apply to existing (commenced construction prior to June 12, 2006) spark ignition engines located at area sources of HAPs and these revisions apply to the 40 hp engine. As a result, the 40 hp emergency generator can no longer be considered an insignificant activity. Although the unit is no longer considered an insignificant activity, since the Division has not adopted the August 20, 2010 revisions to the RICE MACT, the 40 hp engine is still exempt from APEN reporting and minor source construction permit requirements provided actual uncontrolled emissions from the unit do not exceed the APEN de minimis level.

Provisions for the 40 hp emergency generator have been included in "New" Section II.7 of the permit. The description of the 40 hp engine is as follows:

E004: One (1) Kohler, Model No. 30FZ272, Serial No. 304253, Diesel Fuel-Fired Engine, Rated at 40 hp.

The appropriate applicable requirements for this engine are as follows:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)

- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment, when burning coal (Reg 1, Section II.A.4)

  Based on engineering judgment, the Division believes that the operational

activities of fire building, cleaning of fire boxes and soot blowing do not apply to engines. In addition, since this engine is not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment also do not apply to this engine. Finally, based on engineering judgment, it is unlikely that process modifications will occur with this emergency engine. Therefore, for this engine the 30% opacity provision only applies during startup.

- 40 CFR Part 63 Subpart ZZZZ requirements – management practices (oil and filter change, inspect air cleaner and inspect hoses and belts)

- 40 CFR Part 63 Subpart A requirements

  Since this engine is not subject to any emission limitations, monitoring requirements, notification and reporting requirements the requirements in §§ 63.7, 63.8, 63.9 and 63.10 do not apply. In addition, since this emission unit is existing the requirement in § 63.5 (preconstruction review and notification requirements) do not apply. Finally, Table 8 of Subpart ZZZZ indicates that operation and maintenance requirements in 63.6(e) do not apply. Therefore, the permit will only include the prohibition and circumvention requirements in § 63.4.

This engine would have to operate more than 1,087 hours per year to reach emissions above the APEN de minimis level and be subject to the APEN reporting requirements. Since this engine is used for emergency purposes this is unlikely to occur, therefore, the permit will not include any requirements for calculating emissions.

Section III – Permit Shield

- Included a table in Section III.3 for streamlined conditions.

Section IV – General Conditions

- Added a version date.

- The paragraph in Condition 3.d indicating that the requirements are state-only has been removed, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.

- The title for Condition 6 was changed from "Emission Standards for Asbestos" to "Emission Controls for Asbestos" and in the text the phrase "emission standards for asbestos" was changed to "asbestos control".

- General Condition 29 was revised by reformatting and adding the provisions in Reg 7, Section III.C as paragraph e.

Appendices

- Removed the two existing emergency generators and composting operations from the insignificant activity list in Appendix A. The 40 hp emergency generator

was included in the tables in Appendices B and C.

- Changed the Division contact for submittal of reports in Appendix D.
- Cleared the information from the table in Appendix F.

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
Stationary Sources Program / Air Pollution Control Division

INTER-OFFICE COMMUNICATION

PS Memo 10-01

TO: Stationary Sources Staff, Local Agencies, Regulated Community

FROM: Kirsten King and Roland C. Hea

DATE: September 20, 2010

RE: Permit Modeling Requirements for the 1-Hour NO_2 and SO_2 NAAQS

The Division is establishing this guidance for use by minor stationary sources of nitrogen dioxide (NO_2) and sulfur dioxide (SO_2) in evaluating whether modeling is necessary for permitting purposes to determine whether a permit applicant's emissions will comply with the new 1-hour NO_2 and/or the new 1-hour SO_2 National Ambient Air Quality Standard (NAAQS). The United States Environmental Protection Agency (EPA) published implementation guidance on June 28, 2010 and August 23, 2010 regarding demonstrating compliance with the new standards for Prevention of Significant Deterioration (PSD) sources.[1] The Division finds it useful to publish this supplemental state guidance to ensure that minor sources are addressed in a manner consistent with the EPA guidance for PSD sources.

Under federal rules, an ambient air quality impact analysis is required for each pollutant that a PSD source has the potential to emit in significant amounts. Such analysis includes modeling. The metric used by EPA to measure significant amounts is the significant emissions rate (SER). Federal rules currently define the SER for NO_X and SO_2 as 40 tons per year (tpy). (40 CFR 52.21(b)(23)(i); 40 CFR 51.166(b)(23)(i)). EPA recently evaluated and decided to apply on an interim basis the 40 tpy SER to major source permitting compliance demonstrations for the hourly NO_2 and SO_2 standards. EPA concludes and states that an ambient air quality impact analysis is not necessary for PSD sources with projected NO_2 or SO_2 emissions rates below the SER. (Wood Memoranda at p.11 and p.4)

[1] See June 28, 2010, Anna Marie Wood, Acting Director, Air Quality Policy Division, Office of Air Quality Planning and Standards Memorandum "General Guidance for Implementing the 1-hour NO_2 National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO_2 Significant Impact Level" and August 23, 2010 Memorandum "General Guidance for Implementing the 1-hour SO_2 National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour SO_2 Significant Impact Level" ("Wood Memoranda").

The Division has evaluated EPA's rationale for establishing NO_2 and SO_2 SERs for modeling the 1-hour NO_2 and SO_2 standards. The Wood Memoranda guidance set forth EPA's reasoning that its SER for SO_2 (a pollutant with shorter-term 3-hour and 24-hour averaging times) is 40 tpy, and, for this pollutant, ambient air quality impact analyses have not been necessary at levels below the SER. EPA has concluded that this reasoning applies to the one-hour NO_2 and SO_2 standards on an interim basis. EPA states it intends to conduct an evaluation of screening tools available to permitting agencies. In the interim, it recommends the continued use of the existing SER for NO_x and SO_2 emissions with respect to the 1-hour NO_2 and SO_2 standards, and thus ambient air quality impact analyses are not necessary for either NO_2 or SO_2 emissions below the 40 tpy SER.

EPA's Wood Memoranda guidance address PSD sources. The Division believes that the same principles apply to minor sources, in part, to ensure consistency of treatment in permitting and to ensure that it is not imposing different requirements on minor sources than those to which PSD sources are subject. The Division is aware of no factual basis to impose more stringent requirements on minor sources than EPA would impose on the largest air pollution sources. Therefore, the Division will apply EPA's SERs for NO_X and SO_2 to the 1-hour NO_2 and 1-hour SO_2 standards for all stationary source permitting activities, including determining when ambient air quality impact analyses are necessary for permitting, pending the consideration of any further guidance issued by EPA on this subject.

Metro Waste Water Reclamation District / Suez Metro Denver, LLC - Facility Wide HAP Emissions (tons/yr)

	Source								
Pollutant	**NG Combustion[1]**	**DG Combustion[2]**	**WW Treatment[3]**	**MWRD E001[4]**	**MWRD Insig Heaters[5]**	**MWRD E002[6]**	**MWRD E003[6] (proposed new gen.)**	**MWRD E004 [6]**	**Total**
acetaldehyde		5.80E-02		1.09E-04		5.25E-05	2.10E-05	3.90E-04	5.86E-02
acrolein		3.48E-02		3.40E-05		1.72E-05	6.56E-06	2.40E-04	3.51E-02
benzene*	1.01E-04	1.56E+00	7.00E-02	3.35E-03	4.48E-04	1.70E-03	6.46E-04	6.83E-04	1.64E+00
cadmium	5.29E-05				2.35E-04				2.88E-04
chlorobenzene*			1.30E-01						1.30E-01
chloroethane (ethyl chloride)*			1.00E-01						1.00E-01
chloroform*			1.45E+00						1.45E+00
chromium	6.72E-05				2.99E-04				3.66E-04
dichlorobenzene	5.76E-05				2.56E-04				3.14E-04
ethylbenzene*			7.10E-01						7.10E-01
formaldehyde	3.60E-03	1.31E-01		3.41E-04	1.60E-02	1.73E-04	6.57E-05	2.91E-03	1.54E-01
hexane	8.64E-02				3.84E-01				4.70E-01
methylene chloride*		6.11E-02	2.36E+00						2.42E+00
methanol									0.00E+00
naphthalene	2.93E-05								2.93E-05
nickel	1.01E-04				4.48E-04				5.49E-04
styrene*		3.41E-02	9.40E-01						9.74E-01
TCA (methyl chloroform)*		5.57E-02	2.16E+00						2.22E+00
TCE*			1.30E+00						1.30E+00
tetrachloroethylene (perchloroethylene)*			5.30E+00						5.30E+00
toluene*	1.63E-04	4.89E-02	7.19E+00	1.21E-03	5.75E-04	6.15E-04	2.35E-04	2.20E-04	7.24E+00
Total PAHs				9.15E-04		4.64E-04	1.76E-04		1.56E-03
vinyl chloride									0.00E+00
xylene				8.33E-04		4.22E-04	1.61E-04	6.19E-05	1.48E-03
Total	9.06E-02	1.99	11.10	6.79E-03	4.02E-01	3.44E-03	1.31E-03	4.50E-03	13.59
Highest Single HAP									7.24

[1]based on boilers burning natural gas at permitted annual limit, using AP-42 emission factors

[2]based on the flares burning digester gas at permitted rate, emission factors from FIRE (used boiler emission factors)

[3]Based on individual HAP at maximum actual emission rate for period of 1992 - 2005 x 1.2

[4]based on max hrly fuel and permitted hrs of operation.

[5]Emissions based on 8760 hrs/yr of operation.

[6]Emissions are based on 500 hrs/yr of operation in accordance with the September 6, 1995 EPA Memo, “Calculating Potential to Emit (PTE) for Emergency Generators”

*HAPS indicated as the significant HAPS for wastewater treatment. Individual HAPS based on max past actuals x 1.2. Total HAPS based on permitted VOC emission limit